

STATEMENT OF BASIS

Tennessee Alloys Company
Bridgeport, AL
Jackson County
705-0007

This proposed Title V Major Source Operating Permit renewal is issued under the provisions of ADEM Admin. Code r. 335-3-16. The above name applicant has requested authorization to perform the work or operate the facility shown on the application and drawing, plans, and other documents attached herto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Tennessee Alloys Company (TAC), located in Bridgeport, Alabama is a manufacturing facility that produces two types of ferrosilicon (50 percent and 75 percent) from raw materials.

The following are significant sources of air pollution for this facility:

- 40 MW Electric Arc Furnace with Baghouse
- Dump Hopper with Baghouse
- Primary Crushing and Screening with Baghouse
- Secondary Crushing and Screening with Baghouse
- Crushing and Sizing System with Baghouse
- Silfume Handling, Transport, and Storage with Bin Vents

40 MW Electric Arc Furnace with Baghouse

Process Description:

The raw materials (quartz gravel, wood chips, steel, and coal or coke) are loaded into the furnace, which uses a submerged electric arc process. Smelting is accomplished by converting electric energy to heat. An alternating current applied to electrodes causes the current to flow through the electrode tips. This provides a reaction zone temperature of up to 2000 °C. At the high temperatures provided by the submerged arc, the carbon source raw materials react chemically with oxygen in the silicon oxide to form carbon monoxide and to reduce the ores to base metal.

Periodically, the facility beneficially disposes of spent baghouse bags, spent oil and air filters, and oily rags and empty grease tubes from plant maintenance activities by charging these items to the submerged arc furnace. These items serve as both a source of fuel and a carbon source for the furnace.

The molten alloy and slag that accumulate on the furnace hearth are removed at approximately two to three hour intervals through the taphole. Typically, ten tapping events occur per day. The taphole is opened and the molten alloy and slag flow from the taphole into a carbon-lined runner which directs the alloy and slag into the reaction ladle. When the tapping is complete, the taphole is resealed with a carbon paste plug. The molten alloy in the ladle is chemically adjusted as needed to produce a specific product. The molten alloy is poured into castings and allowed to cool. Emissions from this process are vented to the Main Baghouse and then exhausted into the atmosphere.

Additional periodic activities are necessary to operate the furnace. Poling of the furnace is done as needed (approximately 1 per week). Poling is done to clear a tap hole blockage and can result in a “blowing tap” for a brief period. The emissions that occur during poling are captured by the tap hood and vented to the main baghouse. Also, once per month the large ladles used to move

the molten ferro-silicon are “baked” by natural gas burners inserted into the ladles. The emissions from this activity are from the combustion of natural gas.

Product fines are collected by the baghouse and sold. The final product is stored in bins.

Applicability:

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.
- This source is subject to the applicable emission standard of ADEM Admin. Code r. 335-3-10-.02(26), “*40 CFR Part 60 Subpart Z New Source Performance Standards - Standards of Performance for Ferroalloy Production Facilities*”.
- This source is subject to ADEM Admin. Code r. 335-3-4-.04(1), “Control of Particulate Emissions for Process Industries – General”. However, the PM limits required by “*40 CFR Part 60 Subpart Z New Source Performance Standards - Standards of Performance for Ferroalloy Production Facilities*” takes precedence.
- This unit is subject to ADEM Admin. Code r. 335-3-4-.01(1), “Control of Particulate Emissions – Visible Emissions”.
- Per § 63.11524, a ferroalloys production facility that is an area source of hazardous air pollutants (HAPs) emissions is subject to the applicable provisions of 40 CFR 63 Subpart YYYYYY, “*National Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities*”.
- Per § 63.11530, an area source ferroalloys production facility is subject to the applicable provisions of 40 CFR Subpart A, “*General Provisions*” as listed in Table 1 of 40 CFR 63 Subpart YYYYYY.
- This furnace is subject to 40 CFR 64, Compliance Assurance Monitoring. Pre-control potential particulate matter emissions exceed 100 TPY.

Emissions Standards:

- Opacity
 - ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six (6) minute average. During one six (6) minute period a person may discharge into the atmosphere from any source of emission forty (40%) percent opacity,

OR

- Visible emissions (VE) discharged to the atmosphere from the Main Baghouse must not exceed 5 percent of accumulated occurrences in a 60-minute observation period as required §63.11526(a) of 40 CFR 63 Subpart YYYYYY. (*§63.11526(a) Subpart YYYYYY*)
- Fugitive PM emissions discharged to the atmosphere from the furnace building must not exhibit opacity greater than 20 percent (6-minute average), except for one 6-minute average per hour that does not exceed 60 percent as required by § 63.11526(b) of 40 CFR 63 Subpart YYYYYY. (*§63.11526(b) Subpart YYYYYY*)

- Particulate Matter
 - Particulate matter emissions from the stacks associated with the electric arc furnace and baghouse shall not exceed the 0.99 lbs/Mega Watt per hr standard required by 40 CFR §60.626(a)(1) Subpart Z. (ADEM Admin. Code r. 335-3-10-.02 (26))

OR

- o ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

ADEM Admin. Code r. 335-3-10-.01(2) states “The emission standards in this Chapter shall supercede the emission standards in Chapters 335-3,-4,-5,-6,-7 and -8 if both of the following criteria are met: (a) the source category is subject to the regulations in this Chapter for the specific pollutants to which an emission standard under this Chapter applies, and (b) the emission standard under Chapters 335-3,-4,-5,-6,-7 and -8 is more stringent than the emission standard in this Chapter for the specific pollutants regulated.”

The SIP process weight is more stringent than 40 CFR §60.262(a)(1) Subpart Z (ADEM Admin. Code r. 335-3-10-.02 (26)). Therefore, particulate matter emissions from the stack associated with the electric arc furnace and baghouse shall not exceed the greater of 0.99 lb per Megawatt hr or the allowable as set by ADEM Admin. Code r. 335-3-10-.01(2) is applicable.

Expected Emissions:

The maximum expected emissions, based on an emission test performed during the week of October 14, 1996 through October 17, 1996, are as follows:

Pollutant	Expected Emissions (lb/hr)	Expected Emissions (TPY)
PM	4	18
SO₂	160	700
NO_x	50	220
CO	60	265
VOC	5	22
PB	.004	.02

Compliance and Performance Test Methods and Procedures:

- If testing is required, particulate matter(PM) emissions shall be determined in accordance with Method 5 of 40 CFR 60, Appendix A. (*ADEM Admin.Code r. 335-3-1-.05*)
- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department shall be used in the determination of the opacity of the stack emissions. (*ADEM Admin.Code r. 335-3-1-.05*)
- This source is subject to applicable compliance requirements of 40 CFR Part 63 Subpart YYYYYY, “*National Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities*” to include the testing and compliance demonstration standards of §63.11528 (a), (b)(1-2), (c)(1-3).
- To comply with the standard of Subpart YYYYYY, TAC must meet all of the following: (*40 CFR §63.11525(a) & (b) Subpart YYYYYY*)
 - Must not discharge to the atmosphere visible emissions (VE) from the main baghouse that exceed 5 percent of accumulated occurrences in a 60-minute observation period.
 - Must not discharge to the atmosphere fugitive PM emissions from the furnace building containing the electrometallurgical operations that exhibit opacity greater than 20 percent (6-minute average), except for one 6-minute average per hour that does not exceed 60 percent.

Emission Monitoring:

This unit is subject to the applicable emission monitoring requirements of 40 CFR 63 Subpart YYYYYY, “*National Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities*” and ADEM Admin. Code r. 335-3-16-.05. The facility is required to comply with the applicable emission monitoring sections of Subpart YYYYYY by June 22, 2009:

- § 63.11257(a):
 - TAC must conduct visual monitoring of the monovalent of the main baghouse for any VE according to the schedule specified in paragraphs § 63.11257(a)(1)(i) and § 63.11257(a)(1)(ii) of 40 CFR 63 Subpart YYYYYY.
 - § 63.11257(a)(1)(i) *Daily visual monitoring*. Requires that TAC must perform visual determination of fugitive emissions once per day, on each day the process is in operation, during the operation of the process.
 - § 63.11257(a)(1)(ii) *Weekly visual monitoring*. Requires that if no fugitive emissions are detected in consecutive daily visual monitoring performed in accordance with paragraph (a)(1)(i) of this section for 90 days of operation of the process, you may decrease the frequency of visual monitoring to once per calendar week of time the process is in operation, during operation of the process. If visible fugitive emissions are detected during these inspections, you must resume daily visual monitoring of that operation during each day that the process is in operation, in accordance with paragraph (a)(1)(i) of this section until TAC satisfies the criteria of this section to resume conducting weekly visual monitoring.

- § 63.11257(a)(2):
 - If the visual monitoring reveals the presence of any VE, you must conduct a Method 22 (appendix A-7 of 40 CFR part 60) test following the requirements of § 63.11528(b)(1) within 24 hours of determining the presence of any VE.
- ADEM Admin. Code r. 335-3-16-.05:
 - The permittee shall perform the following inspections of the main baghouse to verify proper operation:
 - 1) Once per day perform a visual check of the baghouse ridge vent.
 - 2) Once per week check hopper, fan, and cleaning cycle for proper operation.
 - 3) Once per week a visual check of all hoods and ductwork.
 - 4) Record any repairs or observed problems.
 - The permittee shall perform the following inspections of the main baghouse to verify proper operation:
 - 1) Internal inspection of structure, access doors, and bags during major outages which occur at approximately 12 to 18 months intervals.
 - 2) Annual external inspection of all hoppers.

CAM Analysis:

Particulate Matter

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;
- This unit has a limit on PM emissions of 39.6 (lb/hr) pounds per hour.
- This unit uses a control device (main baghouse) to achieve compliance with the PM limitation.
 - A fabric filter baghouse reduces PM emissions with a removal efficiency of 99%.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, “potential pre-control device emissions” shall have the same meaning as “potential to emit,” as defined in §64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.
 - Based on an emission test performed during the week of October 14, 1996 through October 17, 1996, the **furnace has the pre-controlled potential to emit particulate matter equal to or greater than 100 percent of the amount required to be classified as a major source.**
- Since the allowable emissions standard of 0.99 lbs/Mega Watt per hr (39.6 lbs/hr) required by 40 CFR §60.626(a)(1) Subpart Z, exceeds 100 TPY for this unit, the following PM emissions limit would ensure that the potential to emit, including the effect of control devices, is less than 100 TPY. The limit would prevent the facility from being required to collect four or more data values as required in §64.3(b)(4)(i).

Emission Point	Allowable Emissions (lb/hr)	Allowable Emissions (TPY)
EP001	22.7	99.4

Monitoring

- The facility proposes the following monitoring to satisfy the requirements of CAM:

MONITORING APPROACH: 40 MW Electric Arc Furnace

I. Indicator	Pressure Drop	Visible Emission	Visual Inspections
Measurement Approach	Pressure drop across the baghouse will be monitored once each operating day utilizing an inlet pressure gauge.	Visible emissions will be monitored each operating day using qualitative observations of the appropriate vent.	The facility will visually inspect the hopper, fan, cleaning cycle, hoods, and ductwork once per week. The structure, access doors, bags, and hoppers will have an internal inspection during each major outage, which occur at approximately 18 month intervals.
II. Indicator Range	An excursion will be defined as a pressure drop outside the range of 1 to 16 inches of water column. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion is defined as the presence of abnormal visible emissions. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion will be defined as a missed weekly inspection or the failure to perform an internal inspection during a major outage, which occur approximately every 18-months.
III. Performance Criteria A. Data Representativeness	The inlet pressure gauge has been properly situated to measure inlet air pressure to the device.	Observations will be taken at the exhaust outlet where the filtered air is introduced to the atmosphere.	These periodic inspections will identify system problems, which must be corrected to ensure proper operation.

B.Verification of Operation Status	Monitoring will only occur on those days when the furnace and baghouse are operational.	Monitoring will only occur on those days when the furnace and baghouse are operational.	N/A
C.QA/QC Practices and Criteria	The inlet pressure gauge will be tested and calibrated as required and in accordance with manufacturer's written instructions.	The observer will receive on-the-job training, which will acclimate the observer to what constitutes normal/abnormal readings.	N/A
D. Monitoring Frequency	The observation will be recorded on at least 90% of the operating days in a six-month period.	The observation will be recorded on at least 90% of the operating days in a six-month period.	At approximately 18 month intervals.
Data Collection Procedures	The observation will be documented by the observer.	The observation will be documented by the observer.	The observer will document the results of each inspection.
Averaging period	N/A	N/A	N/A

Justification

Rationale for Selection of Performance Indicators

Visible emissions were selected as a performance indicator because it is indicative of good operation and maintenance of the fabric filter. When the equipment is properly operating, visible emissions will maintain a consistently normal appearance. If the exhaust plume should change in overall appearance, there is a likelihood that the fabric filter may have entered into an upset condition that must be investigated to determine the cause of the abnormal emissions. The most likely causes of increased visible emissions from a fabric filter is broken bags or condensation of high moisture content exhaust air.

In general, the fabric filter will operate within a prescribed range of pressure drops based on the airflow being delivered to the equipment. If the pressure drop readings change dramatically or fall outside of the specified range, an investigation must be performed to determine the cause of the change in readings and remedial actions performed, if required. The most likely causes of a change in pressure drop are either broken or blinded filter bags, clogged inlet lines, or a significant reduction in airflow to the collector.

Proper maintenance of the auxiliary equipment is essential to proper operation of the baghouse. Therefore, TAC will conduct weekly inspections of the hopper, fan, cleaning cycle, hoods, and ductwork. Additionally, TAC will complete an internal inspection of all structures, access doors, bags, and hoppers during each major outage, which occur at approximately 18 month intervals.

Rationale for Selection of Indicator Ranges

The selected indicator for visible emissions is a change from normal appearance. The observer will be trained to recognize normal emissions from the exhaust so that in the event there is a change in appearance of the exhaust plume; an investigation into its cause can be initiated. Some visible emissions are detected as the exhaust monovent due to the presence of some particulate not captured on the fabric filter (fabric filter removal efficiency is estimated at 99%). This is considered a normal condition. If a consistent change in the color, consistency, or other appearance feature of the plume is noted, it will be documented as an excursion. When an abnormal condition exists, maintenance will be notified of the excursion, and will instigate an investigation to determine the cause of the visible emission. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the visible emissions will be

scheduled and performed at a time such that the impact to operations are minimized while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limit has been exceeded.

The selected indicator for the fabric filter unit is a pressure drop less than 1 inches w.c. or greater than 16 inches w.c. Whenever the pressure drop is above or below the range of 1 to 16 inches w.c. an investigation into its cause will be initiated. The wide range of values is required because of the variability in airflow to the fabric filter unit. The airflow to the baghouse can affect the pressure drop. TAC monitors the fan motor amperage which is indicative of the airflow rate. If the pressure drop reading has fallen outside of the range, maintenance staff will be notified of the excursion, and will instigate an investigation to determine the cause of the unusual reading. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the unusual pressure drop will be scheduled and performed. The activities will occur at a time such that the impacts to operations are minimized, while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limitation has been exceeded.

Recordkeeping and Reporting Requirements:

The Permittee shall provide a written report (by letter, fax, or email) to the Department, by the 10th day of each month, showing all periods when the furnace baghouse was not in operation during the preceding month. For each period the baghouse was not in operation, the report will describe or show the following:

- The time the furnace was not in operation.
 - The time the baghouse was not in operation.
 - The baghouse down time that was in excess of the furnace down time.
 - The reason(s) the furnace and/or baghouse were not in operation.
 - The total of the excess baghouse down time as a percentage of the furnace monthly operating time.
- The Permittee shall maintain a record of all inspections performed to satisfy the requirements of periodic monitoring. This shall include all problems observed and corrective actions taken. Each record shall be maintained for a period of 5 years. (*ADEM Admin. Code r. 335-3-16-.05(c)(2)*).
 - This source is subject to the applicable requirements of 40 CFR Part 64, "Compliance Assurance Monitoring" to include the Reporting and Recordkeeping Requirements in §64.9 (40 CFR Part 64 – CAM).
 - This source shall comply with the notification requirements specified in § 63.11259(a) & (b). (*40 CFR § 63.11259 Subpart YYYYYY*).
 - This source shall comply with the reporting requirements specified in § 63.11259(c). (*40 CFR § 63.11259 Subpart YYYYYY*). These reports include, but are not limited to, the following:
 - Results of daily visual monitoring events (Main Baghouse).
 - Results of follow up Method 22 tests that were if VE are observed during daily visual monitoring at the Main Baghouse.
 - Results of Method 22 tests required at the Furnace Building.
 - This source shall comply with the reporting requirements specified in § 63.11259(d) & (e). (*40 CFR § 63.11259 Subpart YYYYYY*).

- The facility must keep the records of all daily or weekly visual, Method 22 (appendix A–7 of 40 CFR part 60), and Method 9 (appendix A–4 of 40 CFR part 60) monitoring data required by 40 CFR § 63.11527 and the following information:
 - The date, place, and time of the monitoring event;
 - Person conducting the monitoring;
 - Technique or method used;
 - Operating conditions during the activity; and
 - Results, including the date, time, and duration of the period from the time the monitoring indicated a problem (e.g., VE) to the time that monitoring indicated proper operation.
- The facility records must be in a form suitable and readily available for expeditious review, according to 40 CFR § 63.10(b)(1).
- As specified in 40 CFR § 63.10(b)(1), you must keep each record for 5 years following the date of each recorded action. (40 CFR § 63.11259(f))
- You must keep each record onsite for at least 2 years after the date of each recorded action according to § 63.10(b)(1). You may keep the records offsite for the remaining 3 years. (40 CFR § 63.11259(g)).

Dump Hopper with Baghouse #1

Cooled ferrosilicon product is moved via a front-end loader to the Dump Hopper. A conveyor carries the product from the dump hopper to the grader screen which separates fines and passes larger product to the primary crusher. Emissions from this process are vented to the dump hopper baghouse and then exhausted into the atmosphere.

Applicability:

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, *“Major Source Operating Permits”*.
- This source is subject to ADEM Admin. Code r. 335-3-4-.04(1), *“Control of Particulate Emissions for Process Industries – General”*.
- This unit is subject to ADEM Admin. Code r. 335-3-4-.01(1), *“Control of Particulate Emissions – Visible Emissions”*.
- This source is subject to 40 CFR 64, Compliance Assurance Monitoring. Pre-control potential particulate matter emissions exceed 100 TPY.

Emissions Standards

- Opacity
 - ADEM Admin Code r. 335-4-.01(1)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six minute average. During one six (6) minute period a person may discharge into the atmosphere from any source of emission forty (40%) percent opacity.

- ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

The PM allowable for this unit at maximum capacity would be 34.2 lb/hr.

Expected Emissions:

The maximum expected emissions, based on an emission test performed during the week of October 14, 1996 through October 17, 1996, are as follows:

Pollutant	Expected Emissions (lb/hr)	Expected Emissions (TPY)
PM	4.06*	17.8*

*The PM allowable for this unit at maximum capacity would be 34.2 lb/hr.

Compliance and Performance Test Methods and Procedures:

- If testing is required, particulate matter(PM) emissions shall be determined in accordance with Method 5 of 40 CFR 60, Appendix A. (ADEM Admin. Code r. 335-3-1-.05)
- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department shall be used in the determination of the opacity of the stack emissions. (ADEM Admin. Code r. 335-3-1-.05)

Emission Monitoring:

This unit is subject to the applicable emission monitoring requirements of ADEM Admin. Code r. 335-3-16-.05.

- ADEM Admin. Code r. 335-3-16-.05:
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Once per week perform a visual check of the baghouse ridge vent.
 - 2) Once per month check hopper, fan, and cleaning cycle for proper operation.
 - 3) Once per month perform a visual check of all hoods and ductwork.
 - 4) Record any repairs or observed problems.
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Internal inspection of structure, access doors, and bags.
 - 2) External inspection of all hoppers.

CAM Analysis:

Particulate Matter

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;
- This unit has a limit on PM emissions of 34.2 (lb/hr) pounds per hour.

- This unit uses a control device (baghouse) to achieve compliance with the PM limitation.
 - A baghouse reduces PM emissions with a removal efficiency of 99%.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, “potential pre-control device emissions” shall have the same meaning as “potential to emit,” as defined in §64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.
 - Based on an emission test performed during the week of October 14, 1996 through October 17, 1996, the **furnace has the pre-controlled potential to emit particulate matter equal to or greater than 100 percent of the amount required to be classified as a major source.**
- Since the allowable emissions standard of 34.2 lbs/hr required by ADEM Admin Code r. 335-3-4-.04(1) exceeds 100 TPY for this unit, the following PM emissions limit would ensure that the potential to emit, including the effect of control devices, is less than 100 TPY. The limit would prevent the facility from being required to collect four or more data values as required in §64.3(b)(4)(i).

Emission Point	Allowable Emissions (lb/hr)	Allowable Emissions (TPY)
EP002	22.7	99.4

- PM emissions from emission point EP002 shall not exceed the lesser of that which is calculated using the process weight equation, as defined in ADEM Admin. Code r. 335-3-4-.04(1), or the requested PM limit as stated above.

Monitoring

- The facility proposes the following monitoring to satisfy the requirements of CAM:

MONITORING APPROACH: Dump Hopper

I. Indicator	Pressure Drop	Visible Emission	Visual Inspections
Measurement Approach	Pressure drop across the baghouse will be monitored once each operating day utilizing an inlet pressure gauge.	Visible emissions will be monitored each operating day using qualitative observations of the appropriate vent.	The facility will visually inspect the hopper, fan, cleaning cycle, hoods, and ductwork once per month. The structure, access doors, bags, and hoppers will have an internal inspection annually.
II. Indicator Range	An excursion will be defined as a pressure drop outside the range of 1 to 14 inches of water column. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion is defined as the presence of abnormal visible emissions. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion will be defined as a missed monthly inspection or greater than a 12-month period between internal inspections.
III. Performance Criteria			
A. Data Representativeness	The inlet pressure gauge has been properly situated to measure inlet air pressure to the device.	Observations will be taken at the exhaust outlet where the filtered air is introduced to the atmosphere.	These periodic inspections will identify system problems, which must be corrected to ensure proper operation.
B. Verification of Operation Status	Monitoring will only occur on those days when the furnace and baghouse are operational.	Monitoring will only occur on those days when the furnace and baghouse are operational.	N/A

C.QA/QC Practices and Criteria	The inlet pressure gauge will be tested and calibrated as required and in accordance with manufacturer's written instructions.	The observer will receive on-the-job training, which will acclimate the observer to what constitutes normal/abnormal readings.	N/A
D. Monitoring Frequency	The observation will be recorded on at least 90% of the operating days in a six-month period.	The observation will be recorded on at least 90% of the operating days in a six-month period.	Monthly or Annually, as noted.
Data Collection Procedures	The observation will be documented by the observer.	The observation will be documented by the observer.	The observer will document the results of each inspection.
Averaging period	N/A	N/A	N/A

Justification

Rationale for Selection of Performance Indicators

Visible emissions were selected as a performance indicator because it is indicative of good operation and maintenance of the fabric filter. When the equipment is properly operating, visible emissions will maintain a consistently normal appearance. If the exhaust plume should change in overall appearance, there is a likelihood that the fabric filter may have entered into an upset condition that must be investigated to determine the cause of the abnormal emission. The most likely causes of increased visible emissions from a fabric filter is broken bags or condensation of high moisture content exhaust air.

In general, the fabric filter will operate within a prescribed range of pressure drops based on the airflow being delivered to the equipment. If the pressure drop readings change dramatically or fall outside of the specified range, an investigation must be performed to determine the cause of the change in readings and remedial actions performed, if required. The most likely causes of a change in pressure drop are either broken or

blinded filter bags, clogged inlet lines, or a significant reduction in airflow to the collector.

Proper maintenance of the auxiliary equipment is essential to proper operation of the baghouse. Therefore, TAC will conduct weekly inspections of the hopper, fan, cleaning cycle, hoods, and ductwork. Additionally, TAC will complete an internal inspection of all structures, access doors, bags, and hoppers once per twelve month period.

Rationale for Selection of Indicator Ranges

The selected indicator for visible emissions is a change from normal appearance. The observer will be trained to recognize normal emissions from the exhaust so that in the event there is a change in appearance of the exhaust plume; an investigation into its cause can be initiated. Some visible emissions are detected at the exhaust monovalent due to the presence of some particulate not captured on the fabric filter (fabric filter removal efficiency is estimated at 99%). This is considered a normal condition. If a consistent change in the color, consistency, or other appearance feature of the plume is noted, it will be documented as an excursion. When an abnormal condition exists, maintenance will be notified of the excursion, and will instigate an investigation to determine the cause of the visible emission. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the visible emissions will be scheduled and performed at a time such that the impact to operations are minimized while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limit has been exceeded.

The selected indicator for the fabric filter unit is a pressure drop less than 1 inches w.c. or greater than 14 inches w.c. Whenever the pressure drop is above or below the range of 1 to 14 inches w.c. an investigation into its cause will be initiated. The wide range of values is required because of the variability in airflow to the fabric filter unit. Low production will lead to low airflow with high production yielding a corresponding high airflow. If the pressure drop reading has fallen outside of the range, maintenance staff will be notified of the excursion, and will instigate an investigation to determine the cause of the unusual reading. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the unusual pressure drop will be scheduled and performed. The activities will occur at a time such that the impacts to operations are minimized, while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limitation has been exceeded.

Recordkeeping and Reporting Requirements:

- The Permittee shall maintain a record of all inspections performed to satisfy the requirements of periodic monitoring. This shall include all problems observed and corrective actions taken. Each record shall be maintained for a period of 5 years. (*ADEM Admin. Code r. 335-3-16-.05(c)(2)*).
- This source is subject to the applicable requirements of 40 CFR Part 64, "Compliance Assurance Monitoring" to include the Reporting and Recordkeeping Requirements in §64.9 (40 CFR Part 64 – CAM).

- The Permittee shall record the baghouse pressure daily. Any deviations from the pressure range shall be documented along with the corrective action and reported to the Department within two (2) working days. Each record shall be maintained for a period of 5 years. (40 CFR Part 64 – CAM).

Primary Screening and Crushing with Baghouse #2

The molten alloy is removed from the furnace through a process called tapping. Hot ferrosilicon metal is tapped from the furnace approximately ten times per day. The tapped metal is transferred to a 27-ton ladle, which is chemically adjusted to the appropriate specifications and then poured into a casting ring to solidify. Once the metal has cooled, the cast is transferred via a front-end loader to the dump hopper. Conveyors transport the material from the dump hopper to the grader screen, which separates fines and passes larger product to the Primary Crusher. Emissions from this process are vented to the primary crusher baghouse and then exhausted into the atmosphere.

Applicability:

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.
- This source is subject to ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.
- This unit is subject to ADEM Admin. Code r. 335-3-4-.01(1), “*Control of Particulate Emissions – Visible Emissions*”.
- This source is subject to 40 CFR 64, Compliance Assurance Monitoring. Pre-control potential particulate matter emissions exceed 100 TPY.

Emissions Standards

- Opacity
 - ADEM Admin Code r. 335-4-.01(01)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%)

percent opacity, as determined by a six minute average. During one six (6) minute period a person may discharge into the atmosphere from any source of emission forty (40%) percent opacity.

- ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

The PM allowable for this unit at maximum capacity would be 34.2 lb/hr.

Expected Emissions:

The maximum expected emissions, based on an emission test performed during the week of October 14, 1996 through October 17, 1996, are as follows:

Pollutant	Expected Emissions (lb/hr)	Expected Emissions (TPY)
PM	3.67*	16.1*

*The PM allowable for this unit at maximum capacity would be 34.2 lb/hr.

Compliance and Performance Test Methods and Procedures:

- If testing is required, particulate matter(PM) emissions shall be determined in accordance with Method 5 of 40 CFR 60, Appendix A. (ADEM Admin.Code r. 335-3-1-.05)

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department shall be used in the determination of the opacity of the stack emissions.
(ADEM Admin.Code r. 335-3-1-.05)

Emission Monitoring:

This unit is subject to the applicable emission monitoring requirements of ADEM Admin. Code r. 335-3-16-.05.

- ADEM Admin. Code r. 335-3-16-.05:
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Once per week perform a visual check of the baghouse ridge vent.
 - 2) Once per month check hopper, fan and cleaning cycle for proper operation.
 - 3) Once per month perform a visual check of all hoods and ductwork.
 - 4) Record any repairs or observed problems.
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Internal inspection of structure, access doors and bags.
 - 2) External inspection of all hoppers.

CAM Analysis:

Particulate Matter

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;
- This unit has a limit on PM emissions of 34.2 (lb/hr) pounds per hour.
- This unit uses a control device (baghouse) to achieve compliance with the PM limitation.
 - A baghouse reduces PM emissions with a removal efficiency of 99%.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, “potential pre-control device emissions” shall have the same meaning as “potential to emit,” as defined in §64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

Based on an emission test performed during the week of October 14, 1996 through October 17, 1996, the **furnace has the pre-controlled potential to emit particulate matter equal to or greater than 100 percent of the amount required to be classified as a major source.**

- Since the allowable emissions standard of 34.2 lbs/hr required by ADEM Admin Code r. 335-3-4-.04(1) exceeds 100 TPY for this unit, the following PM emissions limit would ensure that the potential to emit, including the effect of control devices, is less than 100 TPY. The limit would prevent the facility from being required to collect four or more data values as required in §64.3(b)(4)(i).

Emission Point	Allowable Emissions (lb/hr)	Allowable Emissions (TPY)
EP003	22.7	99.4

- PM emissions from emission point EP003 shall not exceed the lesser of that which is calculated using the process weight equation, as defined in ADEM Admin. Code r. 335-3-4-.04(1), or the requested PM limit as stated above.

Monitoring

- The facility proposes the following monitoring to satisfy the requirements of CAM:

MONITORING APPROACH: Primary Crushing and Screening

I. Indicator	Pressure Drop	Visible Emission	Visual Inspections
Measurement Approach	Pressure drop across the baghouse will be monitored once each operating day utilizing an inlet pressure gauge.	Visible emissions will be monitored each operating day using qualitative observations of the appropriate vent.	The facility will visually inspect the hopper, fan, cleaning cycle, hoods, and ductwork once per month. The structure, access doors, bags, and hoppers will have an internal inspection annually.
II. Indicator Range	An excursion will be defined as a pressure drop outside the range of 1 to 14 inches of water column. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion is defined as the presence of abnormal visible emissions. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion will be defined as a missed monthly inspection or greater than a 12-month period between internal inspections.
III. Performance Criteria A. Data Representativeness	The inlet pressure gauge has been properly situated to measure inlet air pressure to the device.	Observations will be taken at the exhaust outlet where the filtered air is introduced to the atmosphere.	These periodic inspections will identify system problems, which must be corrected to ensure proper operation.

B.Verification of Operation Status	Monitoring will only occur on those days when the furnace and baghouse are operational.	Monitoring will only occur on those days when the furnace and baghouse are operational.	N/A
C.QA/QC Practices and Criteria	The inlet pressure gauge will be tested and calibrated as required and in accordance with manufacturer's written instructions.	The observer will receive on-the-job training, which will acclimate the observer to what constitutes normal/abnormal readings.	N/A
D. Monitoring Frequency	The observation will be recorded on at least 90% of the operating days in a six-month period.	The observation will be recorded on at least 90% of the operating days in a six-month period.	Monthly or Annually, as noted.
Data Collection Procedures	The observation will be documented by the observer.	The observation will be documented by the observer.	The observer will document the results of each inspection.
Averaging period	N/A	N/A	N/A

Justification

Rationale for Selection of Performance Indicators

Visible emissions were selected as a performance indicator because it is indicative of good operation and maintenance of the fabric filter. When the equipment is properly operating, visible emissions will maintain a consistently normal appearance. If the exhaust plume should change in overall appearance, there is a likelihood that the fabric filter may have entered into an upset condition that must be investigated to determine the cause of the abnormal emission. The most likely causes of increased visible emissions from a fabric filter is broken bags or condensation of high moisture content exhaust air.

In general, the fabric filter will operate within a prescribed range of pressure drops based on the airflow being delivered to the equipment. If the pressure drop readings change

dramatically or fall outside of the specified range, an investigation must be performed to determine the cause of the change in readings and remedial actions performed, if required. The most likely causes of a change in pressure drop are either broken or blinded filter bags, clogged inlet lines, or a significant reduction in airflow to the collector.

Proper maintenance of the auxiliary equipment is essential to proper operation of the baghouse. Therefore, TAC will conduct weekly inspections of the hopper, fan, cleaning cycle, hoods, and ductwork. Additionally, TAC will complete an internal inspection of all structures, access doors, bags, and hoppers once per twelve month period.

Rationale for Selection of Indicator Ranges

The selected indicator for visible emissions is a change from normal appearance. The observer will be trained to recognize normal emissions from the exhaust so that in the event there is a change in appearance of the exhaust plume; an investigation into its cause can be initiated. Some visible emissions are detected at the exhaust monovalent due to the presence of some particulate not captured on the fabric filter (fabric filter removal efficiency is estimated at 99%). This is considered a normal condition. If a consistent change in the color, consistency, or other appearance feature of the plume is noted, it will be documented as an excursion. When an abnormal condition exists, maintenance will be notified of the excursion, and will instigate an investigation to determine the cause of the visible emission. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the visible emissions will be scheduled and performed at a time such that the impact to operations are minimized while insuring that no emissions limits are violated. All results of the investigation and any

maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limit has been exceeded.

The selected indicator for the fabric filter unit is a pressure drop less than 1 inches w.c. or greater than 14 inches w.c. Whenever the pressure drop is above or below the range of 1 to 14 inches w.c. an investigation into its cause will be initiated. The wide range of values is required because of the variability in airflow to the fabric filter unit. Low production will lead to low airflow with high production yielding a corresponding high airflow. If the pressure drop reading has fallen outside of the range, maintenance staff will be notified of the excursion, and will instigate an investigation to determine the cause of the unusual reading. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the unusual pressure drop will be scheduled and performed. The activities will occur at a time such that the impacts to operations are minimized, while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limitation has been exceeded.

Recordkeeping and Reporting Requirements:

- The Permittee shall maintain a record of all inspections performed to satisfy the requirements of periodic monitoring. This shall include all problems observed and corrective actions taken. Each record shall be maintained for a period of 5 years. (*ADEM Admin. Code r. 335-3-16-.05(c)(2)*).

- This source is subject to the applicable requirements of 40 CFR Part 64, "Compliance Assurance Monitoring" to include the Reporting and Recordkeeping Requirements in §64.9 (40 CFR Part 64 – CAM).
- The Permittee shall record the baghouse pressure daily. Any deviations from the pressure range shall be documented along with the corrective action and reported to the Department within two (2) working days. Each record shall be maintained for a period of 5 years. (40 CFR Part 64 – CAM).

Secondary Screening and Crushing with Baghouse #3

The secondary crushing and screens are used for additional product sizing. Conveyors transport the material from the primary crusher. Emissions from this process are vented to the secondary screening and crushing baghouse and then exhausted into the atmosphere.

Applicability:

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.
- This source is subject to ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.
- This unit is subject to ADEM Admin. Code r. 335-3-4-.01(1), “*Control of Particulate Emissions – Visible Emissions*”.
- This source is subject to 40 CFR 64, Compliance Assurance Monitoring. Pre-control potential particulate matter emissions exceed 100 TPY.

Emissions Standards

- Opacity
 - ADEM Admin Code r. 335-4-.01(01)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six minute average. During one six (6) minute period a person may discharge into the atmosphere from any source of emission forty (40%) percent opacity.
- ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

The PM allowable for this unit at maximum capacity would be 30.6 lb/hr.

Expected Emissions:

The maximum expected emissions, based on an emission test performed during the week of October 14, 1996 through October 17, 1996, are as follows:

Pollutant	Expected Emissions (lb/hr)	Expected Emissions (TPY)
PM	2.05*	8.98*

*The PM allowable for this unit at maximum capacity would be 30.6 lb/hr.

Compliance and Performance Test Methods and Procedures:

- If testing is required, particulate matter(PM) emissions shall be determined in accordance with Method 5 of 40 CFR 60, Appendix A. (*ADEM Admin.Code r. 335-3-1-.05*)
- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department shall be used in the determination of the opacity of the stack emissions. (*ADEM Admin.Code r. 335-3-1-.05*)

Emission Monitoring:

This unit is subject to the applicable emission monitoring requirements of ADEM Admin. Code r. 335-3-16-.05

- ADEM Admin. Code r. 335-3-16-.05:
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Once per week perform a visual check of the baghouse ridge vent.
 - 2) Once per month check hopper, fan, and cleaning cycle for proper operation.
 - 3) Once per month perform a visual check of all hoods and ductwork.
 - 4) Record any repairs or observed problems.
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Internal inspection of structure, access doors, and bags.
 - 2) External inspection of all hoppers.

CAM Analysis:

Particulate Matter

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;
- This unit has a limit on PM emissions of 30.6 (lb/hr) pounds per hour.
- This unit uses a control device (baghouse) to achieve compliance with the PM limitation.
 - A baghouse reduces PM emissions with a removal efficiency of 99%.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year,

required for a source to be classified as a major source. For purposes of this paragraph, “potential pre-control device emissions” shall have the same meaning as “potential to emit,” as defined in §64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

Based on an emission test performed during the week of October 14, 1996 through October 17, 1996, the **furnace has the pre-controlled potential to emit particulate matter equal to or greater than 100 percent of the amount required to be classified as a major source.**

- Since the allowable emissions standard of 34.2 lbs/hr required by ADEM Admin Code r. 335-3-4-.04(1) exceeds 100 TPY for this unit, the following PM emissions limit would ensure that the potential to emit, including the effect of control devices, is less than 100 TPY. The limit would prevent the facility from being required to collect four or more data values as required in §64.3(b)(4)(i).

Emission Point	Allowable Emissions (lb/hr)	Allowable Emissions (TPY)
EP004	22.7	99.4

- PM emissions from emission point EP004 shall not exceed the lesser of that which is calculated using the process weight equation, as defined in ADEM Admin. Code r. 335-3-4-.04(1), or the requested PM limit as stated above.

Monitoring

- The facility proposes the following monitoring to satisfy the requirements of CAM:

MONITORING APPROACH: Primary Crushing and Screening

I. Indicator	Pressure Drop	Visible Emission	Visual Inspections
Measurement Approach	Pressure Drop across the baghouse will be monitored once each operating day utilizing an inlet pressure gauge.	Visible emissions will be monitored each operating day using qualitative observations of the appropriate vent.	The facility will visually inspect the hopper, fan, cleaning cycle, hoods, and ductwork once per month. The structure, access doors, bags, and hoppers will have an internal inspection annually.
II. Indicator Range	An excursion will be defined as a pressure drop outside the range of 1 to 14 inches of water column. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion is defined as the presence of abnormal visible emissions. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion will be defined as a missed monthly inspection or greater than a 12-month period between internal inspections.
III. Performance Criteria			
A. Data Representativeness	The inlet pressure gauge has been properly situated to measure inlet air pressure to the device.	Observations will be taken at the exhaust outlet where the filtered air is introduced to the atmosphere.	These periodic inspections will identify system problems, which must be corrected to ensure proper operation.
B. Verification of Operation Status	Monitoring will only occur on those days when the furnace and baghouse are operational.	Monitoring will only occur on those days when the furnace and baghouse are operational.	N/A

C.QA/QC Practices and Criteria	The inlet pressure gauge will be tested and calibrated as required and in accordance with manufacturer's written instructions.	The observer will receive on-the-job training, which will acclimate the observer to what constitutes normal/abnormal readings.	N/A
D. Monitoring Frequency	The observation will be recorded on at least 90% of the operating days in a six-month period.	The observation will be recorded on at least 90% of the operating days in a six-month period.	Monthly or Annually, as noted.
Data Collection Procedures	The observation will be documented by the observer.	The observation will be documented by the observer.	The observer will document the results of each inspection.
Averaging period	N/A	N/A	N/A

Justification

Rationale for Selection of Performance Indicators

Visible emissions were selected as a performance indicator because it is indicative of good operation and maintenance of the fabric filter. When the equipment is properly operating, visible emissions will maintain a consistently normal appearance. If the exhaust plume should change in overall appearance, there is a likelihood that the fabric filter may have entered into an upset condition that must be investigated to determine the cause of the abnormal emissions. The most likely causes of increased visible emissions from a fabric filter is broken bags or condensation of high moisture content exhaust air.

In general, the fabric filter will operate within a prescribed range of pressure drops based on the airflow being delivered to the equipment. If the pressure drop readings change dramatically or fall outside of the specified range, an investigation must be performed to determine the cause of the change in readings and remedial actions performed, if

required. The most likely causes of a change in pressure drop are either broken or blinded filter bags, clogged inlet lines, or a significant reduction in airflow to the collector.

Proper maintenance of the auxiliary equipment is essential to proper operation of the baghouse. Therefore, TAC will conduct monthly inspections of the hopper, fan, cleaning cycle, hoods, and ductwork. Additionally, TAC will complete an internal inspection of all structures, access doors, bags, and hoppers once per twelve month period.

Rationale for Selection of Indicator Ranges

The selected indicator for visible emissions is a change from normal appearance. The observer will be trained to recognize normal emissions from the exhaust so that in the event there is a change in appearance of the exhaust plume; an investigation into its cause can be initiated. Some visible emissions are detected at the exhaust monovent due to the presence of some particulate not captured on the fabric filter (fabric filter removal efficiency is estimated at 99%). This is considered a normal condition. If a consistent change in the color, consistency, or other appearance feature of the plume is noted, it will be documented as an excursion. When an abnormal condition exists, maintenance will be notified of the excursion, and will instigate an investigation to determine the cause of the visible emissions. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the visible emissions will be scheduled and performed at a time such that the impact to operations are minimized while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limit has been exceeded.

The selected indicator for the fabric filter unit is a pressure drop less than 1 inches w.c. or greater than 14 inches w.c. Whenever the pressure drop is above or below the range of 1 to 14 inches w.c. an investigation into its cause will be initiated. The wide range of values is required because of the variability in airflow to the fabric filter unit. Low production will lead to low airflow with high production yielding a corresponding high airflow. If the pressure drop reading has fallen outside of the range, maintenance staff will be notified of the excursion, and will instigate an investigation to determine the cause of the unusual reading. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the unusual pressure drop will be scheduled and performed. The activities will occur at a time such that the impacts to operations are minimized, while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limitation has been exceeded.

Recordkeeping and Reporting Requirements:

- The Permittee shall maintain a record of all inspections performed to satisfy the requirements of periodic monitoring. This shall include all problems observed and corrective actions taken. Each record shall be maintained for a period of 5 years. (*ADEM Admin. Code r. 335-3-16-.05(c)(2)*).
- This source is subject to the applicable requirements of 40 CFR Part 64, "Compliance Assurance Monitoring" to include the Reporting and Recordkeeping Requirements in §64.9. (40 CFR Part 64 – CAM).

- The Permittee shall record the baghouse pressure daily. Any deviations from the pressure range shall be documented along with the corrective action and reported to the Department within two (2) working days. Each record shall be maintained for a period of 5 years. (40 CFR Part 64 – CAM).

Crushing and Sizing with Baghouse #4

The crushing and sizing process is used for additional product sizing of the facility's 75 percent ferrosilicon product. Conveyors transport the material from the secondary screening and crushing. Emissions from this process are vented to the crushing and sizing baghouse and then exhausted into the atmosphere.

Applicability:

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, *“Major Source Operating Permits”*.
- This source is subject to ADEM Admin. Code r. 335-3-4-.04(1), *“Control of Particulate Emissions for Process Industries – General”*.
- This unit is subject to ADEM Admin. Code r. 335-3-4-.01(1), *“Control of Particulate Emissions – Visible Emissions”*.
- This unit has enforceable limits in place in order to comply with the applicable provisions of ADEM Admin. Code r. 335-3-14-.04 *“Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]”*.
- This source is subject to 40 CFR 64, Compliance Assurance Monitoring. Pre-control potential particulate matter emissions exceed 100 TPY.

Emissions Standards

- Opacity
 - ADEM Admin Code r. 335-4-.01(01)(a)(b), states no person shall discharge particulate emissions of an opacity greater than that designated as twenty (20%) percent opacity, as determined by a six minute average. During one six (6) minute period a person may discharge into the atmosphere from any source of emission forty (40%) percent opacity.

- ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

and

5.7 lb/hr (Anti-PSD)(ADEM Admin. Code r. 335-3-14.04)

The PM allowable for this unit at maximum capacity would be 5.7 lb/hr.

Expected Emissions:

The maximum expected emissions, based on an emission test performed during the week of October 14, 1996 through October 17, 1996, are as follows:

Pollutant	Expected Emissions (lb/hr)	Expected Emissions (TPY)
PM	1.06*	4.64*

Compliance and Performance Test Methods and Procedures:

- If testing is required, particulate matter(PM) emissions shall be determined in accordance with Method 5 of 40 CFR 60, Appendix A. (ADEM Admin.Code r. 335-3-1-.05)
- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department shall be used in the determination of the opacity of the stack emissions. (ADEM Admin.Code r. 335-3-1-.05)

Emission Monitoring:

This unit is subject to the applicable emission monitoring requirements of ADEM Admin. Code r. 335-3-16-.05

- ADEM Admin. Code r. 335-3-16-.05:
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Once per week perform a visual check of the baghouse ridge vent.
 - 2) Once per month check hopper, fan and cleaning cycle for proper operation.
 - 3) Once per month perform a visual check of all hoods and ductwork.
 - 4) Record any repairs or observed problems.
 - The permittee shall perform the following inspections of the baghouse to verify proper operation:
 - 1) Internal inspection of structure, access doors and bags.
 - 2) External inspection of all hoppers.

CAM Analysis:

Particulate Matter

- The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under paragraph (b)(1) of this section;
- This unit has a limit on PM emissions of 5.7 (lb/hr) pounds per hour.

- This unit uses a control device (baghouse) to achieve compliance with the PM limitation.
 - A baghouse reduces PM emissions with a removal efficiency of 99%.
- The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. For purposes of this paragraph, “potential pre-control device emissions” shall have the same meaning as “potential to emit,” as defined in §64.1, except that emission reductions achieved by the applicable control device shall not be taken into account.

Based on an emission test performed during the week of October 14, 1996 through October 17, 1996, the **furnace has the pre-controlled potential to emit particulate matter equal to or greater than 100 percent of the amount required to be classified as a major source.**

Monitoring

- The facility proposes the following monitoring to satisfy the requirements of CAM:

MONITORING APPROACH: Crushing and Sizing

I. Indicator	Pressure Drop	Visible Emission	Visual Inspections
Measurement Approach	Pressure Drop across the baghouse will be monitored once each operating day utilizing an inlet pressure gauge.	Visible emissions will be monitored each operating day using qualitative observations of the appropriate vent.	The facility will visually inspect the hopper, fan, cleaning cycle, hoods, and ductwork once per month. The structure, access doors, bags, and hoppers will have an internal inspection annually.

II. Indicator Range	An excursion will be defined as a pressure drop outside the range of 1 to 14 inches of water column. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion is defined as the presence of abnormal visible emissions. An excursion triggers an investigation into the cause and the appropriate corrective action will be performed and documented.	An excursion will be defined as a missed monthly inspection or greater than a 12-month period between internal inspections.
III. Performance Criteria			
A. Data Representativeness	The inlet pressure gauge has been properly situated to measure inlet air pressure to the device.	Observations will be taken at the exhaust outlet where the filtered air is introduced to the atmosphere.	These periodic inspections will identify system problems, which must be corrected to ensure proper operation.
B. Verification of Operation Status	Monitoring will only occur on those days when the furnace and baghouse are operational.	Monitoring will only occur on those days when the furnace and baghouse are operational.	N/A
C. QA/QC Practices and Criteria	The inlet pressure gauge will be tested and calibrated as required and in accordance with manufacturer's written instructions.	The observer will receive on-the-job training, which will acclimate the observer to what constitutes normal/abnormal readings.	N/A
D. Monitoring Frequency	The observation will be recorded on at least 90% of the operating days in a six-month period.	The observation will be recorded on at least 90% of the operating days in a six-month period.	Monthly or Annually, as noted.
Data Collection Procedures	The observation will be documented by the observer.	The observation will be documented by the observer.	The observer will document the results of each inspection.
Averaging period	N/A	N/A	N/A

Justification

Rationale for Selection of Performance Indicators

Visible emissions were selected as a performance indicator because it is indicative of good operation and maintenance of the fabric filter. When the equipment is properly operating, visible emissions will maintain a consistently normal appearance. If the exhaust plume should change in overall appearance, there is a likelihood that the fabric filter may have entered into an upset condition that must be investigated to determine the cause of the abnormal emission. The most likely causes of increased visible emissions from a fabric filter is broken bags or condensation of high moisture content exhaust air.

In general, the fabric filter will operate within a prescribed range of pressure drops based on the airflow being delivered to the equipment. If the pressure drop readings change dramatically or fall outside of the specified range, an investigation must be performed to determine the cause of the change in readings and remedial actions performed, if required. The most likely causes of a change in pressure drop are either broken or blinded filter bags, clogged inlet lines, or a significant reduction in airflow to the collector.

Proper maintenance of the auxiliary equipment is essential to proper operation of the baghouse. Therefore, TAC will conduct monthly inspections of the hopper, fan, cleaning cycle, hoods, and ductwork. Additionally, TAC will complete an internal inspection of all structures, access doors, bags, and hoppers once per twelve month period.

Rationale for Selection of Indicator Ranges

The selected indicator for visible emissions is a change from normal appearance. The observer will be trained to recognize normal emissions from the exhaust so that in the

event there is a change in appearance of the exhaust plume; an investigation into its cause can be initiated. Some visible emissions are detected at the exhaust monovalent due to the presence of some particulate not captured on the fabric filter (fabric filter removal efficiency is estimated at 99%). This is considered a normal condition. If a consistent change in the color, consistency, or other appearance feature of the plume is noted, it will be documented as an excursion. When an abnormal condition exists, maintenance will be notified of the excursion, and will instigate an investigation to determine the cause of the visible emission. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the visible emissions will be scheduled and performed at a time such that the impact to operations are minimized while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the correction will be documented. No formal report will be required unless it is determined that an emission limit has been exceeded.

The selected indicator for the fabric filter unit is a pressure drop less than 1 inches w.c. or greater than 14 inches w.c. Whenever the pressure drop is above or below the range of 1 to 14 inches w.c. an investigation into its cause will be initiated. The wide range of values is required because of the variability in airflow to the fabric filter unit. Low production will lead to low airflow with high production yielding a corresponding high airflow. If the pressure drop reading has fallen outside of the range, maintenance staff will be notified of the excursion, and will instigate an investigation to determine the cause of the unusual reading. Once determined, the cause of the excursion will be documented and any necessary maintenance activities required to correct the unusual pressure drop will be scheduled and performed. The activities will occur at a time such that the impacts to operations are minimized, while insuring that no emissions limits are violated. All results of the investigation and any maintenance activity associated with the

correction will be documented. No formal report will be required unless it is determined that an emission limitation has been exceeded.

Recordkeeping and Reporting Requirements:

- The Permittee shall maintain a record of all inspections performed to satisfy the requirements of periodic monitoring. This shall include all problems observed and corrective actions taken. Each record shall be maintained for a period of 5 years. (*ADEM Admin. Code r. 335-3-16-.05(c)(2)*).
- This source is subject to the applicable requirements of 40 CFR Part 64, "Compliance Assurance Monitoring" to include the Reporting and Recordkeeping Requirements in §64.9 (40 CFR Part 64 – CAM).
- The Permittee shall record the baghouse pressure daily. Any deviations from the pressure range shall be documented along with the corrective action and reported to the Department within two (2) working days. Each record shall be maintained for a period of 5 years. (40 CFR Part 64 – CAM).

Silfume Handling, Transport, and Storage

Silfume collected in the main baghouse is pneumatically conveyed to three storage silos. These silos each have a bin vent filter located on top of the silo to separate the silfume from the conveying air stream. From the silos the silfume is loaded into bags, trucks, or railcars for shipment to customers or, after mixing with water, to an approved landfill.

Applicability:

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.
- This source is subject to applicable requirements of ADEM Admin. Code r. 335-3-4-.02, “*Fugitive Dust and Fugitive Emissions*”.

Emissions Standards

- There ADEM Admin Code r. 335-3-4-.04(1) states no person shall cause or permit the emission of particulate matter in excess of the amount for the process weight per hour allocated to such source accomplished by use of the equation:

$$E = 3.59 (P)^{0.62} \text{ (P less than 30 tons per hour)}$$

$$E = 17.31 (P)^{0.16} \text{ (P greater than 30 tons per hour)}$$

Where E = Emissions in pounds per hour

P = Process weight per hour in tons per hour

The PM allowable for this unit at maximum capacity would be 3.59 lb/hr.

Expected Emissions:

Per air permit application forms, the expected emission are as follows:

Pollutant	Expected Emissions (lb/hr)	Expected Emissions (TPY)
PM	3.59	16

Compliance and Performance Test Methods and Procedures:

- If testing is required, particulate matter (PM) emission shall be determined in accordance with Method 5 of 40 CFR 60, Appendix A. (*ADEM Admin.Code r. 335-3-1-.05*)
- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department shall be used in the determination of the opacity of the stack emissions. (*ADEM Admin.Code r. 335-3-1-.05*)

Emission Monitoring:

- There are no unit specific emissions monitoring requirements for this process.

Recordkeeping and Reporting Requirements

- There are no unit specific recordkeeping and reporting requirements for this process.